UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,370	07/07/2005	Hans-Detlef Groeger	P05,0091	6471

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EXAMINER
PHAM, HAI CHI

ART UNIT	PAPER NUMBER
2861	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/531,370	GROEGER, HANS-DETLEF
	Examiner	Art Unit	
	Hai C. Pham	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>13 August 2007</u>.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>16-31</u> is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>16-31</u> is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on <u>04/14/05</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☒ All   b)☐ Some * c)☐ None of:
      1.☒ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   The perfection of the claim to priority under 35 U.S.C. 119 that antedates the

reference by filing the certified priority document in the application that satisfies the

enablement and description requirements of 35 U.S.C. 112, first paragraph, is sufficient

to overcome the US 7,126,622 reference.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3.   Claims 16-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Bizen (JP 2002-211042) in view of Katakura et al. (US 5,892,532).

With regard to claim 25, Bizen discloses a LED printer comprising a character

generator (optical print head having a light-emitting portion 1) (Fig. 1) that has a plurality

of light sources arranged in at least one row in groups (the light emitting elements are

arranged in one row in 26 separate groups) (Fig. 2), a separate functional unit (driving

ICa1 through ICa26 dedicated to each of the 26 groups of light emitting elements) for

each light source group for controlling of the light sources, the functional unit is

connected with a central control unit (control circuit 6 of the printer) (Fig. 2), the

functional unit comprising a control unit (timing control circuit 14) (Fig. 3), the light

sources of each group being controlled by said control unit assigned to the respective

functional unit (each of the driving ICa1-ICa26 has its own timing control circuit 14 for

controlling the lighting timing of the light emitting elements in the corresponding group),

the at least one light source row is imaged as an exposure line onto the recording

medium, which is displaced substantially transverse to the exposure line relative to the

character generator (Figs. 7A-7E), and a temporal beginning of the illumination phases

of groups of light sources is selectable such that deviations of the exposure line from a

target line are minimized (the lighting timing is selectively controlled not only for each

individual light emitting element but also for different groups of the light emitting

elements belonging to different driving ICs so as to correct for the deviation of the print

line with respect to the reference line position) (English translation [0041]-[0042], [0061]-

[0070]) (see also Figs. 7A-7E).

Although Bizen discloses the individual driving ICs being accessed through

signal buses on the basis of addresses, Bizen however does not explicitly teach the

address decoder and the address via which it can be specifically activated.

Katakura et al. discloses a LED printer comprising optical print head (35)

including a plurality of light emitting elements arranged in a row in plural groups, each

group having a separate functional unit or IC chips DRs, each IC chip includes an

address decoder or memory writing control section (77) controlling the memory write by

selecting the data write memory cells for activating each of the corresponding light

emitting elements (Fig. 23).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the device of Bizen with the memory writing control section integrated into the driving IC as taught by Katakura et al. The motivation for doing so would have been to provide a more compact driving circuit to reduce the otherwise large external memory writing control.

Bizen also fails to teach the intermediate carrier to carry the image exposed by the light source.

However, it is well known in the art that image can be formed on an intermediate carrier such as the photosensitive drum to be transferred onto the paper or directly to a photosensitive recording medium supported on the drum. Katakura et al. discloses a LED printer comprising an intermediate carrier or photosensitive drum (not shown) and a transferring section for transferring the toner image formed on the photosensitive drum onto paper (col. 3, line 45-54).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the device of Bizen with the photosensitive drum and the image transferring section as taught by Katakura et al. since Katakura et al. teaches this to be well known in the art to formed a latent image on the photosensitive drum to be transferred onto paper.

The method claims 16 and 31 are deemed to be clearly anticipated by functions of the above structures.

With regard to claim 22, 24 and 30, Bizen fails to teach data being stored in a volatile memory separately assigned to the functional unit, and the data comprising a

correction parameter for each light source of the group that represents its individual illumination intensity.

Katakura et al. teaches volatile memories 78a-78d being provided in each functional unit or driver DR for storing the current values for adjusting the drive current of the respective light-emitting elements of the group so as to reduce the variation in light emitting intensity between each light emitting elements of the group and to prevent change in dot shape (col. 11, lines 3-25).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the device of Bizen with the volatile memories assigned to each functional unit for storing the correction parameter for each light source of the group as taught by Katakura et al. The motivation for doing so would have been to reduce the variation in light emitting intensity between each light emitting elements of the group and to prevent change in dot shape as suggested by Katakura et al.

Bizen further teaches:

- (regarding claims 17 and 26) the light source groups are each controllable by the control unit of the associated functional unit independently of a clock pulse that is predetermined by a line period provided for processing of a print line (the timing control circuit 14 controls the corresponding light source group independent of a clock pulse governing the printing timing of the line image by controlling the lighting timing of the individual light emitting sections via the delay control circuit 18) ([0034]),

- (regarding claims 18 and 27) the control unit (14) of each functional unit (driving

  IC) is controlled by the central control unit (6) in order to initiate the illumination

  phase of the associated light source group (e.g., via the delay control circuit 18),

- (regarding claims 19 and 28) the central control unit (6) is programmed in such a

  way that it gives the control unit of each functional unit an individual start

  command for controlling the associated light source group, a time of the start

  command being selected such that a deviation of the exposure line segment

  corresponding to the light source group from the target line is minimized (the

  timing control circuit 14 of each of the driving IC receives a timing signal STB

  from the control circuit 6 to start the lighting timing of the light emitting elements

  of the group),

- (regarding claims 20 and 29) the functional units (driving ICs) are arranged

  operatively in a row (Fig. 2), the functional units having an input interface for

  receiving one of the elements selected from the group consisting of data (e.g.,

  input data signals SI as received by the shift register 11 from a previous stage)

  and a clock signal (e.g., input clock signal CI), and the functional units, with the

  exception of a last functional unit in the row, having an output interface for

  forwarding the data (SO) or the clock signal (CO) to the following functional unit

  in the row (Figs. 2 through 4),

- (regarding claim 21) between the reception and the forwarding of the data or of

  the clock signal there is situated a system clock in which the clock signal is

  reproduced (the system clock CLOCK fed by the control circuit 6 of the printer to

the first driving ICa1 via the input terminal CI is buffered via the buffer B1 before

being fed to the next driving IC) ([0059]) (Fig. 4),

- (regarding claim 23) the data comprise print data for the segments,

    corresponding to the light source group, of a plurality of lines to be printed (five

    data signals corresponding to five lines of image are stored at one time in the

    latch circuits 12a-12e as being fed from the shift register 11) ([0097]) (Fig. 4).

Response to Arguments

4.   Applicant's arguments with respect to claims 16-31 have been considered but are

moot in view of the new grounds of rejection.

Contact Information

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Hai C. Pham whose telephone number is (571) 272-

2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Matthew Luu can be reached on (571) 272-7663. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the
Patent Application Information Retrieval (PAIR) system. Status information for
published applications may be obtained from either Private PAIR or Public PAIR.
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USPTO Customer Service Representative or access to the automated information
system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HAI PHAM
PRIMARY EXAMINER
October 19, 2007